

11014
FAC

11 JUL 1984

From: First Lieutenant Glass
To: Colonel Lilley

Subj: STAFF STUDY OF THE PROPOSED EXPANSION OF THE G-10 IMPACT
AREA SOUTHWARD TO A LINE EXTENDING FROM GC 927328 TO
910317 TO 902319

Ref: (a) Con btwn Capt Hamilton and 1stLt Glass on 9 May 84
(b) Con btwn 1stLt Redmond, MSgt Harrington, and 1stLt
Glass on 22 Jun 84
(c) Phoncon btwn Mr. Larry Stallings and 1stLt Glass on
5 Jul 84
(d) Phoncon btwn MSgt Harrington and 1stLt Glass on 2
Jul 84
(e) Phoncon btwn Mr. Austin and 1stLt Glass
(f) Con btwn Mr. Gurganus, 1stLt Redmond, and 1stLt Glass
on 6 Jul 84
(g) Con btwn Mr. Black and 1stLt Glass on 11 May 84
(h) Phoncon btwn Mr. Gibb and 1stLt Glass on 9 Jul 84

Encl: ✓(1) Artillery Safety Officer, 10thMar ltr 51/WAH/dmo 5100
dtd 22 May 84
(2) CamLej Special Map
✓(3) Range Control Officer, MCB ltr RCTL/HBR/vec 1'000 dtd
18 Apr 84
(4) CG, 2dMarDiv ltr 50I/SDG/aef 5214 dtd 30 Jun 82

1. Introduction

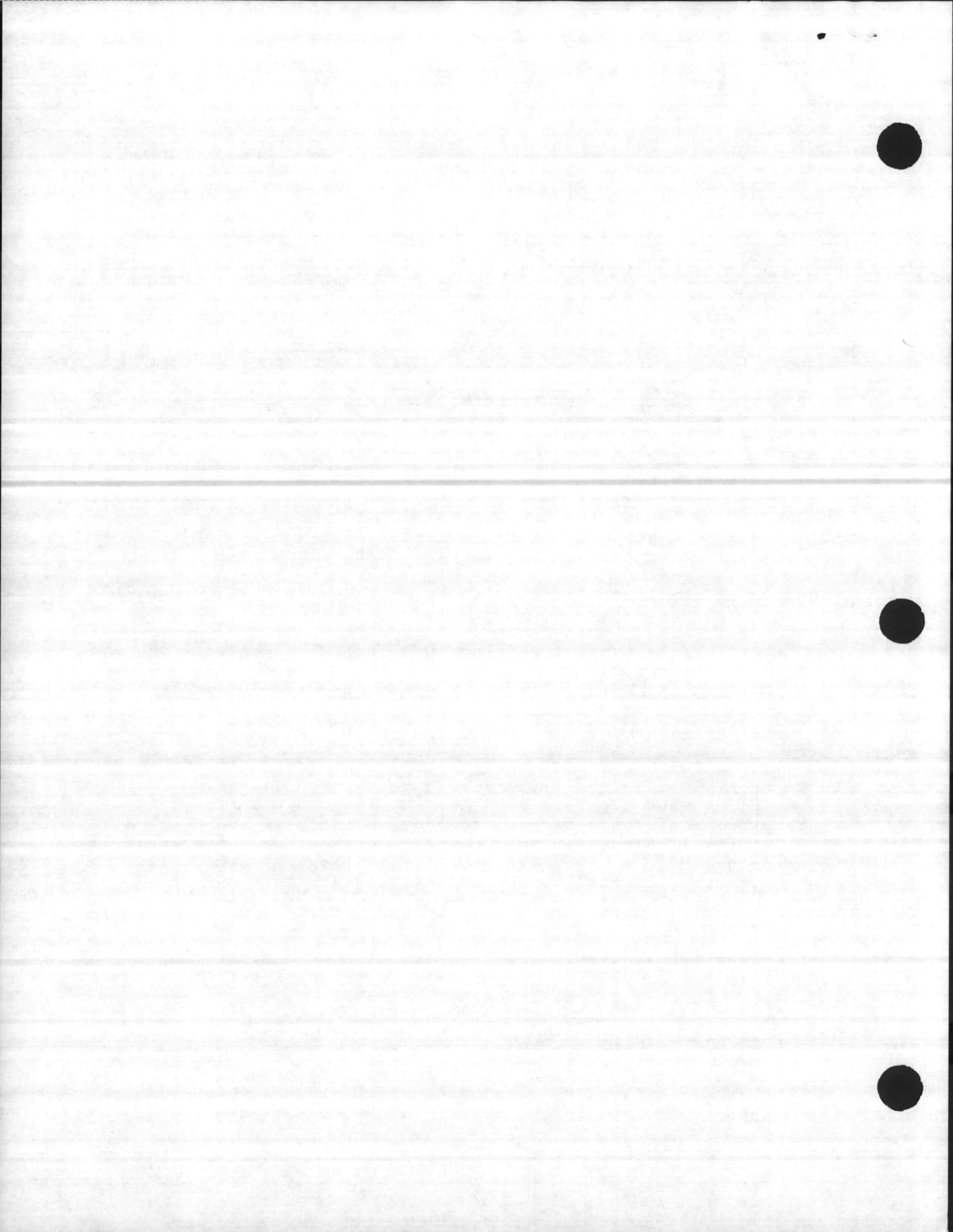
The Marine Corps will rely heavily upon its artillery on any modern battlefield. Artillery must be able to deliver effective fire quickly and accurately on many rapidly approaching, widely separated, long range targets to provide adequate support. Also, the Regimental Commander must coordinate the fires of several battalions with a high degree of flexibility to place effective concentrations of fire on the most vital targets.

2. Problem

Presently, the small size, location, and configuration of the G-10 Impact Area reduces the safety and value of artillery training available on Camp Lejeune, North Carolina.

3. Assumptions

a. That the increased safety and quality of artillery training at Camp Lejeune is significant enough to relocate the G-4 range and turn a portion of training area GF into an impact area.



b. That these alterations can be accomplished without an adverse effect on the environment.

4. Facts Bearing on the Problem

a. The new M198 155mm howitzer has a much longer range and higher muzzle velocity than the 105mm howitzer which it replaced (30km vice 11km) (encl (1)).

b. The high muzzle velocity and flat trajectory of the M198 create a higher possibility of a round ricocheting out of the G-10 Impact Area when targets are engaged using "real world" firing data (encl (1)).

c. The location of gun positions at Camp Lejeune requires artillery units to fire into the G-10 Impact Area along its shortest (North-South) axis (encl (1) & (2)).

d. Presently, M198 batterys must engage targets in the G-10 Impact Area in an unrealistic manner ("the lowest charge with the highest angle of fall") to minimize the chances of a "round out" or ricochet (encl (1)).

e. The small size of the G-10 Impact Area places some targets beyond artillery safety limits (encl (1)).

f. An increase in the size along the G-10 Impact Area's North-South axis will significantly enhance training safety and realism for artillery units (encl (1)).

g. An increase in the size of the G-10 Impact Area will provide more challenging training for Forward Observers and Fire Direction Center personnel (encl (1)).

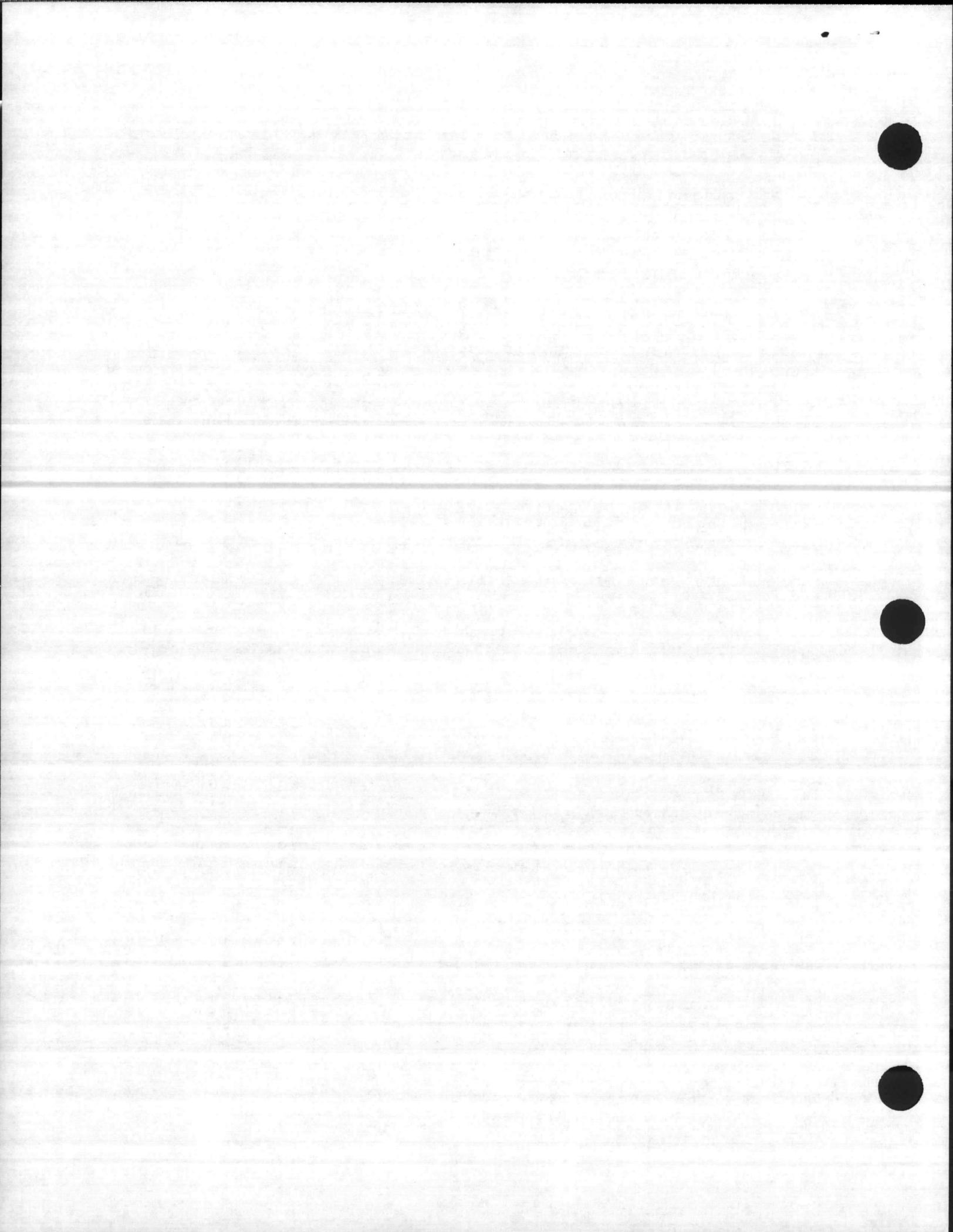
h. Presently, engaging targets in the G-10 Impact Area from West of New River is difficult or impossible (encl (1) & (2)).

i. Implementation of the proposed expansion would allow artillery units West of New River to safely engage targets in the G-10 Impact Area (ref (a) and encl (1) & (2)).

j. Presently, available gun positions allow engagements of targets in the G-10 Impact Area at a maximum range of 14km and an average range of 6km (ref (a) and encl (2)).

k. Training with Rocket Assisted Projectiles (RAP) is not done at Camp Lejeune due to the unavailability of suitable long range engagements (ref (a)).

l. The proposed expansion of the G-10 Impact Area would provide suitable long range engagements from potential gun positions West of New River (ref (a) and encl (1)).



m. The G-4 and G-4a demolition ranges and support facilities must be relocated if the proposed expansion of the G-10 Impact Area is executed (ref (b)).

n. Suitable sites for a relocated G-4 and G-4a are available in the GG and HC training areas respectively (ref (b)).

o. The site preparation and relocation of all buildings presently at the G-4 and G-4a will cost approximately 80 to 110 thousand dollars (ref (c)).

p. The current Demo Range and support facilities of the G-4 are considered to be inadequate (ref (b)).

q. The considered minimum essential facilities for an adequate G-4 range consists of two Class A Ammo Bunkers (144 sq ft ea), two 70'x30' Classrooms with heads, relocation of the current range office building and two Quonset Huts, provisions for electrical power, and a 500 meter square Demo Range (ref (d)).

r. A rough cost estimate for the above-mentioned improved G-4 and relocated G-4a placed the price tag somewhere between 150 and 245 thousand dollars depending on the means of construction (contractor, troop training, etc.) (ref (e)).

s. The proposal to expand the G-10 Impact Area includes clearing 1750 acres of land (encl (2) and (3)).

t. The approximate 1250 acres of unmarketable timber within the G-10 Impact Area can be cleared by heavy equipment from Base Maintenance with support from 2d Force Service Group's 8th Engineers estimated at an average cost of 41/acre if ditched and 49/acre without ditching (ref (f)).

u. Approximately 500 acres of land within the area proposed for clearing contains commercially valuable timber (ref (g) and encl (2) and (3)).

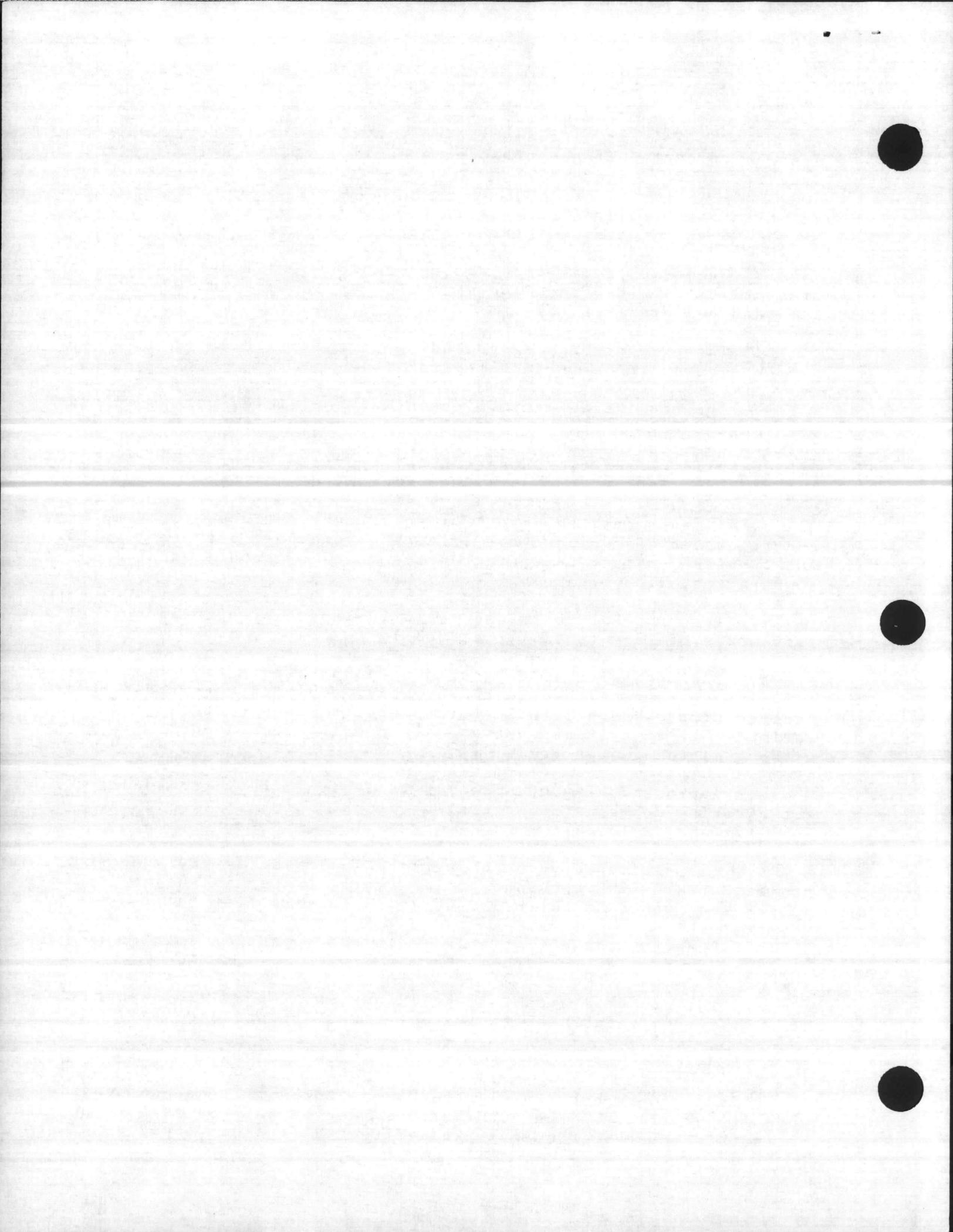
v. The estimated value of marketable timber in the proposed project area is 200 thousand dollars while timber in the new surface danger zone would be worth 350 thousand dollars (ref (h)).

w. Base EOD can effectively sweep the impact area prior to clearing operations (ref (h)).

x. The proposed area for the expansion of the G-10 Impact Area is not an ecologically sensitive area (ref (g) and encl (4)).

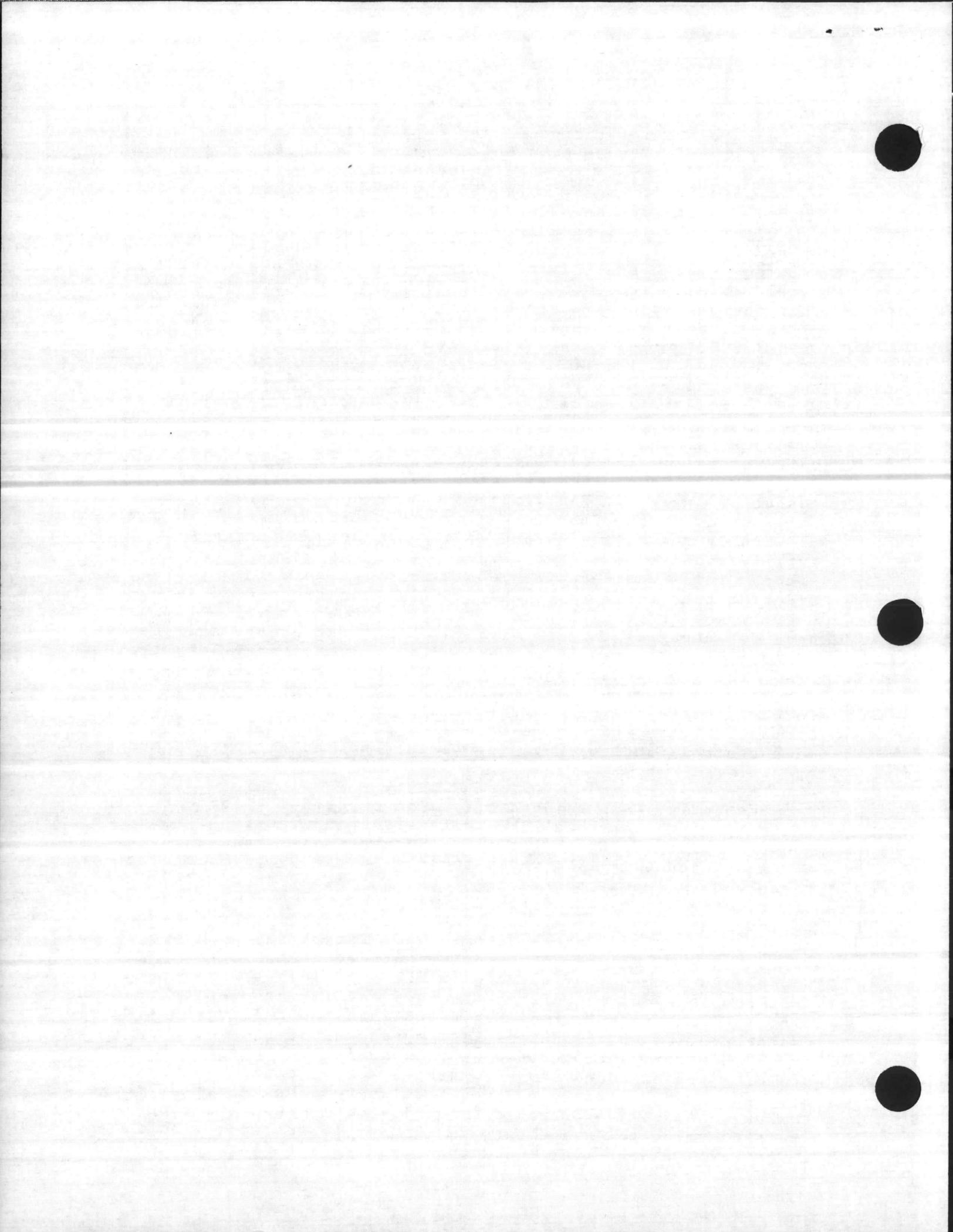
5. Discussion

On any modern battlefield the Marine Corps will depend heavily upon its artillery. The 10th Marines must be able to rapidly concentrate accurate, effective, well-directed fire on widely separated



targets to provide the necessary support for the 2d Marine Division. If artillery units at Camp Lejeune are to achieve this necessary level of effectiveness, Camp Lejeune's impact areas must allow ample opportunities for safe and realistic training on a regular basis. In its present size and configuration, the G-10 Impact Area can offer only limited safety and realism for artillery training. Presently, artillery batteries engaging targets in the G-10 Impact Area must fire generally along the G-10's shortest (North-South) axis. This increases the possibility that a minor error will result in a round completely overshooting the impact area. The introduction of the M198 into the majority of Marine Corps firing battalions, with its 30km range, has aggravated the situation beyond the point of tolerance. Also, the higher muzzle velocity of the M198 creates the possibility of a round ricocheting out of the G-10 Impact Area when normal trajectories are used. As a result, artillery units firing at Camp Lejeune must engage targets in an unrealistic manner (smallest charge, steepest angle of fall) which greatly reduces the value of artillery training at Camp Lejeune. Presently, some targets in the G-10 Impact Area are still beyond artillery safety limits and cannot be engaged. The proposed expansion of the G-10 Impact Area will nearly double its width along North-South axis. This will significantly reduce the threat of a shoot out or ricochet by allowing artillery units to engage targets with double the present margin for error. This consideration becomes all the more important when considering the proximity of the heavily used Lyman Road and G-4 to the G-10 Impact Area. The greater margin for error will eliminate the need for engaging targets with the "smallest charge and steepest angle of fall"; greatly enhancing the value of artillery training. Also, the proposed expansion will offer more challenging training for Forward Observers and Fire Direction Center personnel. The Forward Observers will have to call for fire on more numerous and distant targets while Fire Direction personnel will face more complex fire control problems engaging targets spread out over a much larger area.

Presently, Camp Lejeune offers no opportunity for extended engagements (greater than 15km) with either conventional rounds or Rocket Assisted Projectiles. The longest range engagement available at Camp Lejeune is 15km while targets in the G-10 Impact Area are taken under fire at the range of 6km on the average. The inadequacy of training for extended range engagements at Camp Lejeune is made obvious when considering that the Marine Corps' most numerous medium howitzer, the M198, has a 30km range. Establishing gun positions West of New River does not provide an adequate solution by itself because engagements of targets in the G-10 Impact Area are difficult or impossible due to restrictions against firing over the Base Magazine. Firing from West of New River into the N-1 Impact Area alone cannot provide an adequate solution because of the N-1's small target area. However, the proposed G-10 expansion can provide adequate training for extended range engagements by creating a large target area that can be safely engaged from West of New River at ranges up to 20km. Also, the proposed expansion would lend increased safety and training value to engagements in the N-1 Impact Area. Artillery units West of New River could then use trajectories such that mal-



functioning RAP rounds would fall into either the K-2 or G-10 Impact Areas while engaging targets 24km away.

The small size and configuration of the G-10 Impact Area presently limits opportunities for Multi-battalion firing exercises because of restrictions against "crossing lines of fire". Expanding the G-10 as proposed would provide more target area that could be engaged from many more gun positions (actual and potential) which would allow more flexibility in Multi-battalion exercises. This would increase opportunities for vital fire support coordination training for the 10th Marines Headquarters. The overall increase in available artillery training at Camp Lejeune will reduce the necessity for Off-Base Training which will result in great savings in transportation costs and more funds for actual training.

The environmental impact of large projects such as the proposed G-10 Impact Area expansion, must be carefully examined. In previous discussions, NREAD personnel have indicated that the affected areas are not environmentally sensitive. There is no known endangered species' habitat within the proposed project area. However, Mr. Sharp of NREAD felt that the expansion of the G-10 Impact Area might present a "may effect situation" for the Red Cockaded Woodpecker which should be determined prior to project approval. NREAD personnel believe that the area is not erosion prone and proper erosion control measures should prevent erosion and sedimentation damage to the environment. Forestry personnel have stated that land lost to the forestry rotation is not important enough to become an overriding concern in the consideration of this proposed project. Also, the profit to the government from the harvesting and sale of the timber in the proposed project area will, in part, offset clearing and construction costs.

The proposed expansion of the G-10 Impact Area will require the relocation of G-4 and G-4a. Base EOD has agreed that a roughly 500 meter square area in Training Area HC depicted in enclosure (4) would provide a suitable site. Support facilities for the G-4a can be moved to a new location with two tank transporter runs. Training Area GG will provide a suitable relocation site for the G-4 so long as current support facilities can be relocated to the new site with no more than a week's loss of training time. 2d Combat Engineers has stated that a relocation would provide an excellent opportunity for augmentation of the currently inadequate support facilities.

Executing the project as proposed will require clearing approximately 1750 acres. This total includes 500 acres of marketable timber and 1250 acres of scrub oak and stunted pine in the G-10 Impact Area and Buffer Zone. Heavy equipment from Base Maintenance with support from 8th Engineers "heavy junk" can clear areas containing the unmarketable timber using only M-1 funding.

6. Conclusions

The tremendous increase in the safety and value of artillery training at Camp Lejeune alone more than justifies the effort and funding necessary to implement the proposed G-10 Impact Area expansion.

